

THE ALLERGY AND ENVIRONMENTAL HEALTH ASSOCIATION

QUARTERLY

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THE AEHA QUARTERLY

Quarterly

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THE ALLERGY AND ENVIRONMENTAL HEALTH ASSOCIATION

(Draft statement, please criticize)

The AEHA Quarterly is the journal of the Allergy and Environmental Health Association of Canada, a non-profit, registered charity. The association is concerned with the effects of environmental factors on human health. The Quarterly publishes both scientific and personal material, reflecting the needs and interests of persons with environmentally related illnesses.

DISCLAIMER

The Quarterly does not offer medical advice. Persons wishing to experiment with changes in their lifestyle should consult a physician knowledgeable in environmental

medicine.

Opinions expressed herein are not necessarily those of the Allergy and Environmental Health Association.

MANDATE

The Associations mandate is to increase knowledge and awareness of environmentally related illnesses, stressing prevention, recognition, and treatment, and to advocate for fair and equitable treatment of affected persons.

ENVIRONMENTAL SENSITIVITIES

A growing segment of the population experiences a variety of adverse reactions to environmental agents at levels well below those that might be deemed to affect average persons. This atypical reactivity is called Environmental Sensitivity. Subsections of environmental sensitivity include labels descriptive of the site of the reaction such as "Asthma" (lungs) or of the mechanism of the reaction such as "Allergy", or of the causative agents such as "Multiple Chemical Sensitivity". Typical agents include food, water, airborne substances, and materials typically encountered in our daily lives, including both physiological and psychological stressors. Other phenomenon such as electromagnetic fields also affect human health and are implicated in Environmental Sensitivity. Sensitivity is highly individualistic, affecting each individual in a unique way making definition, diagnosis and treatment difficult. Severe sensitivity is called "Hypersensitivity" and in some extreme instances where a person has a sudden attack called "Anaphylaxis" the condition can be fatal. Symptoms may be mild and

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merely annoying, or they can be severe enough to interfere with daily activities, family life and career.

Treatment of Environmental Sensitivity focusses on prudent lifestyle adjustments including avoidance of offending agents, appropriate nutrition, counselling and medical intervention when needed.

Environmental Sensitivity is a relatively new field and as such it is subject to considerable variations in interpretation. Environmental Sensitivities have been officially acknowledged as legitimate and compensable disorders by many governments, agencies and research establishments. As a result of this official recognition sensitivities and other possibly related immune system disorders are receiving increased funding for research and awareness activities. The Allergy and Environmental Health Association commends those individuals who fought against great odds both professionally and as affected individuals to achieve this recognition.

A list of relevant research papers has been compiled and will be published in the next issue of the Quarterly along with a list of other AEHA resource materials.

AEHA is working with various related agencies and research projects and will report on the progress of these initiatives as they progress.

1992 ANNUAL REPORT

The acceptance of direct human health effects from exposure to environmental toxins [Great Lakes Report]; from electromagnetic fields [U.S., E.P.A.] and the acceptance of Environmental Sensitivities as a legitimate condition [Health and Welfare Canada / Environmental

Sensitivities Issues Paper], combine to indicate that our concerns are being officially acknowledged. As Meryl Streep said in *Out of Africa* "when God wants to punish you he answers your prayers." Now that our prayers have been answered the realisation that it is only one step on a long and steep road sets in. It will take years of hard work to transform official recognition into general and professional recognition and acceptance.

In addition to achieving official recognition Environmental Sensitivities have gained rapid acceptance in many professional disciplines. Leslirae Rotor from our Ottawa branch received federal funding to attend Independence 92 [the international conference on disabilities] in Vancouver. As a result of Leslirae's initiative we will be considered as a participant category in future conferences and we are considering joining COPAH [The Coalition of Provincial Organisations of the Handicapped]. We have been fortunate to have Daryl Rock, an expert on disabilities join our board to improve our position with respect to disability issues. Canada Mortgage and Housing has received funding to expand research and awareness regarding building related issues. In addition to the two booklets issued last year a new series of papers on appropriate methods of dealing with building related issues is in progress. The C.M.H.C. initiative is a five year project and is being managed by Dr. Virginia Salares, past president of our Ottawa branch.

Our newest board members include: Daryl Rock [National Capital Region] BA, MA Public Administration; Daryl is a coordinator of National Access Awareness

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with the Status of the Disabled Secretariat. Nancy Hamilton [Quebec], BA, B Ed. Nancy has recovered from an environmentally related illness, has teaching experience and is now the executive director of an adult health and lifestyle institute; Bill Montieth [Member at Large] is a certified general accountant and is our treasurer; Jean Stephens [British Columbia] was the first Canadian to visit Dr. Rae's clinic. Jean built an environmentally appropriate home in 1981, has run a health food store, and wrote of her experience in last years C.M.H.C. booklet.; Noreen Anderson, [Member at Large], BA Nursing. Norene has just completed her studies, including a focus on Environmental Health, and is our corporate secretary; Russ Otter, Q.C., BA, Lib [Member at Large, Vice President] Russ is the area director of the Metropolitan Toronto Legal Aid Service; Jean Jabonoski, BA, MA, Ed.. Jean works with the Environmental Protection Office of the City of Toronto, and has been involved with the Great Lakes Health Effects Program. Our new board members bring extensive experience and expertise to our organization. They join Ed Lowans, BA, [Member at Large and President] Consultant, built environment and human health, Dr. John G. MacLennan, BA, MD, our Honourary Medical Advisor and founder, and Carol MacAskill, [Atlantic Region]. Carol is a past president of the Nova Scotia branch, has recovered from Environmental Illness and has returned to work. Please join me in welcoming our new board members.

The board is assisted by Donna Powell, BS, Nursing [Operations Manager], and Joanna Anderson BA, MA, [Hamilton Burlington Branch, President] who manages our resources library. Together with our

Branch Presidents and many volunteers, this team is working on many initiatives on your behalf.

The Allergy and Environmental Health Association is now directly or indirectly involved in so many projects that it is hard to list them all or to explain their significance to our needs. Many board members, branch presidents and members are involved in related activities which are important to us. There are also many agencies which are conducting research or advocating on our behalf. Some of these activities include:

- Canada Mortgage and Housing [C.M.H.C.] is producing housing related information, conducting research and assisting with awareness; C.M.H.C. provided funding and a speaker for our A.G.M.]

- Health Protection Branch, Health and Welfare Canada [Have released an issues paper, "Environmental Sensitivities" held the 1990 Environmental Sensitivities Workshop, sponsored Leslierae Rotor's trip to Independence 92 in Vancouver, and is supporting research. Health and Welfare Canada and Environment Canada have also published "Toxic Chemicals in the Great Lakes and Associated Effects [1991], which officially acknowledges direct and cumulative human health effects. Environment Canada has just released "Pesticides The Right Amount" which clearly outlines the extreme risks involved with pesticide usage.

- Provincial Health ministries are also supporting initiatives including the Nova Scotia Clinic and study and in Ontario in addition to the 1985 Thomson report, the Millcroft Inn workshop of 1990 has led to some research projects being undertaken. Although several projects are underway

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there is not sufficient information available at the moment to comment on them.

- In Toronto The 1990 Toronto Personal Exposure Pilot [PEP] Study was released in 1991, and with submissions from Ed Lowans from A.E.H.A., Carolyn Black from the Pesticides Action League [and the A.E.H.A. member responsible for our tax deductions] and the Toronto Environmental Alliance; The Toronto Board of health voted with one dissenter to ban the use of pesticides in Toronto with the exception of greenhouses and bowling greens. The ban on pesticides follows the lead of the Toronto Board of Education and The North York Board of Education. Toronto's non-profit housing community has also taken a leading position by renovating the Slan Avenue house for people with sensitivities, and contracting for environmental assessments [personal and global] for many projects. Toronto is also a participant in the World Health Organisations, Healthy Cities Project. Our members sit on several committees involved in healthy cities and communities initiatives, including The Green Economic Coalition, The Healthy Schools Network [Ann Smith and Maggie Joshi], The Bioregional Network and the Pesticides Action League. Carolyn Black and Ed Lowans are also working with The Canadian Environmental Law Association to critique The Environmental Bill of Rights. Both have also written the ministers involved to request that indoor environments be included, and that the ministry of health be captured by the bill. Our thanks to our C.E.L.A. and Pollution Probe cohorts for their extensive efforts on our behalf.

- Joanna Anderson has been compiling a resource library and has produced lists of

the studies etc. that we have copies of. A.E.H.A. has provided extensive assistance to more than ten students writing thesis papers on Environmental Health and Design, and we receive requests from all over North America as well as from Europe and Australia every day for information on Environmental Sensitivities and Environmental Construction. Many writers contact us for assistance in writing articles and consequently awareness of our illness and of our association is improving significantly. Hundreds of hours of volunteer time are required to answer these requests alone.

- Other recent events include our very successful School Workshop [Donna Powell, and local volunteers] and our Annual General Meeting, workshop and Seminars, [Alice Croft and the kitcheners are volunteers.] Transcripts of the seminars will be available as soon as possible.

- Ed Lowans co-hosted a seminar on environmentally related learning disabilities with Barbara McElgunn of the Learning Disabilities Association of Canada. We are also working with The Lung Association to share information and raise awareness in this important area, and to provide a speakers network.

- The Healthy Schools Network continues to work with home and school committees concerned parents and school boards to address educational environments. The Waterloo board provided space and speakers for our workshop and the Toronto Board is continuing the pilot project to source and test new products etc. The British Columbia Board has produced an information package including a video. The program is called Healthy Schools in British Columbia and is run by the new Office of Health Promotion.

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- The Royal Institute of Architecture has established a committee to improve professional awareness of personal and global environmental issues. Three of our members participate in this program, Ed Lowans, David Anderson and Marianne Bertrand. A.R.I.D.O., The Association of Registered Interior Designers of Ontario is also setting up a committee and will have input from several of our members who are interior designers. Greg Allen, Ed Lowans and Jed Goldberg have been giving information and seminars to the community colleges to encourage the students and faculty to incorporate environmental considerations into their work. Jillian Jensen who sits on the NASA committee, Peter Burns from the Ministry of Housing and several other experts are working together to improve our knowledge of plant based air and water filtration, called Biological Regeneration. There is a demonstration building nearing completion here that incorporates these principles and there are plans to do further research. A major office tower in Toronto will incorporate as many of these concerns as possible. A group of concerned parents has started an initiative to turn school yards into natural spaces, their first project has been a great success.

- With The U.S. Environmental Protection Agencies announcement that they are acknowledging the health risk presented by Electro Magnetic fields and that they are embarking on a research program interest is running high. The Independent Power producers Association is currently reviewing the available material from our files and will be summarizing it.

- The Heritage Seed Program has been very successful and has produced an

excellent "Seed Saving Booklet and Resource List", "Conference Proceedings" and many other publications. Contact The Heritage Seed Program, RR3, Uxbridge, Ontario, L9P 1R3. Canadian Organic Growers has produced a new "Directory of Organic Agriculture" \$12.95 postage paid, "The Organic Field Crop Handbook" \$19.95 postage paid and a video is on the way. Contact COG, Box 6408, Stn. J, Ottawa, Ont. K2A 3Y6

- Noreen Anderson has produced our new brochure which is available from your branch or National, and the Ottawa branch is working on a new school brochure. We are also working on a position paper so if you have input get it in right away.

- A.E.H.A. has a toll free number 800-695-9271 for enquiries only. Please do not use this number for regular calls as we pay by the minute more than we normally would.

- Our fundraising position looks encouraging now that recognition has been formalized and so many professions are setting up committees, and particularly with Federal and Provincial agencies providing research and awareness support. A formal presentation package is in the works. A professional presentation backed by a professional board will enhance our program. Working with an all volunteer program has been taxing to say the least but it has enabled us to demonstrate the fiscal and organizational responsibility needed to attract funding in a tight market. We will also be accepting appropriate advertising for The Quarterly to help offset costs and to help readers become more aware of available products and services.

- Liz Houghtling has retired from editing The Quarterly after a herculean stint in our most punishing position. Liz moved the quality of our most visible asset up a few

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notches making it more difficult to fill her shoes. The next issue or two will be produced by our Toronto volunteers, if your secret urge to be an editor is tempting you to volunteer please give in and give us a call. Future publications will be the responsibility of a team as we are in the habit of burning out individuals, and would like to co-ordinate materials.

- This report has summarized only some of our activities. Many people have asked for an outline of our activities. I hope this list has met that need.

- A.E.H.A. has many unsung heroes who work tirelessly out of the limelight. Branch presidents and their volunteers put in long hours at the local level, and many people work on committees and projects that benefit us but are not internal activities. I would like to thank all of them and particularly Liz Houghtling for their support and for their achievements. I would also like to thank the staff and volunteers of the many Government and Non-Government agencies and private companies that have been so active in supporting our goals over the past year. Our cause and our community are growing together and many members and clients are being served more effectively every day. Thanks.

ED LOWANS: President

RESEARCH

"Dental 'silver' tooth fillings: a source of mercury exposure revealed by whole-body image scan and tissue analysis" Leszek J.Hahn, Reinhard Kloiber, Murray

J.Vimy, Yoshimi Takahashi, and Fritz L.Lorscheider.

Department of Radiology, Medicine and Medical Physiology, University of Calgary, Faculty of Medicine, Calgary Alberta, T2N 4N1, Canada.

These researchers demonstrated "That when radioactive mercury is mixed with dental mercury fillings [amalgam] and placed in teeth of adult sheep the isotope will appear in various organs within 29 days." Uptake sites were shown to include lung, gastrointestinal and jaw tissue, with accumulations developing in the kidneys and liver. The mercury content of amalgam fillings can vapourize and be inhaled or injected; this process can be accelerated by chewing food, gum or by grinding your teeth. The traditional assumption that the mercury in amalgams becomes stabilized is not holding up well against the weight of new evidence. The use of radioactive mercury allowed only the 'new' mercury to be traced, without interference from background levels. The study states that 5.4% of the North American population "displays contact hypersensitivity to mercury" and that mercury has the potential to "precipitate antibody-mediated tissue injury and autoimmune disease." The implications for kidney and endocrine glands "known sites of autoimmune disorders" are questioned. The closing reference "experimental evidence in support of amalgam safety is at best tenuous." is the understatement of the day. Estimates place dental mercury usage in North America at "100,000 Kg per year."

If you are concerned about avoiding amalgams consider your options carefully as white fillings also contain many ingredients which may affect sensitive persons, and the process of removing amalgams has its own

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risks. Consult an expert in this special procedure before making decisions. Procedures such as hypnotism, electro-stimulation and acupuncture can help overcome problems with freezings etc. Ed.

"TAKE HOME TOXINS"

In a study published in the American Journal of Industrial Medicine Dr. Edward Baker and Dr. Barry Knishkowsky describe reports from the fifties of "second hand" exposures. [Indoor Air Review] Workers who bring home toxins on their clothes can inadvertently put their family at risk. Among the many similar references two of the most notable are of the police officer who brought home sand from the firing range resulting in children developing lead poisoning and in reverse the worker who set off the radiation alarm when he went in to work, thus initiating the investigation that led to the identification of radon in the home as a serious health threat.

V D U STANDARD

Sweden has established a comprehensive V.D.U. [Video Display Unit] standard. North American manufacturers will have to comply in order to compete in this important market. [Indoor Air Review, Jan.92] Both I.B.M. and Apple computer now have low E.M.F. [Electro Magnetic Field] models in their lines. The New York Board of Education has specified that all new terminals purchased by the board must be low emission models. This specification should be adopted by all school boards in view of the evidence linking children as an elevated risk group to leukemia and electromagnetic fields. The University of Southern California E.M.F. Childhood Leukemia

Study " supports the findings of earlier studies....increased risk of childhood leukemia associated with the presence of high current powerlines." The team found " an association with wire codes but not with direct measures." [Indoor Air Review Jan 92] This study along with the Cable Splicers study and the California Insurance Workers study have led to the acceptance of a significant risk factor and to the U.S. E.P.A. initiating a research program. Household risks cited include exposure to computer terminals, televisions, hair dryers, electric blankets and other appliances.

COMPUTER MODELLING

The new science of computer modelling allows old and new data to be analysed under varying assumptions in a very short period of time. Computer modelling also allows scientists to play with chemical formulas before they have to synthesize them, thus they can try to predict properties and behaviour, and avoid the time and expense of synthesizing and testing each new substance one at a time in series.

Jonathan Samet of the University of New Mexico examined over 90 radon studies and concluded that "dosages commonly encountered by children and adults at home may meet or exceed those experienced by miners" [Indoor Air Review Jan.92]

Toxicological studies can also be fast tracked with this technology. The risk associated with a particular chemical can now be [demonstrated] for sister chemicals without having to do extensive experiments.

Regulatory agencies are now considering sister chemicals as suspect until proven otherwise.

Computer modelling also allowed the

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technology behind room temperature catalysts to be developed and marketed far sooner and for a fraction of the cost than would have been the case using conventional technology. Room temperature catalysts can be used in an air filtration system to break down pollutants into safer compounds. A similar process works in your car's exhaust system. Catalysts have the ability to cause chemical reactions without being used up in the process therefore they can represent an improvement over carbon which uses up resources. Catalysts are also capable of acting on some of the pollutants that carbon is not very effective on. More on catalysts as the information becomes available. Ed.

BIOTECHNOLOGY

Since 1971 when genetic recombinant technology began the science has developed into a mad dash for dominance in a field where patents can truly be a licence to print money and manipulate markets and society. The potential to produce bio-pesticides, resistant crops etc. is tantalizing but the Machiavellian risks associated with the uncontrolled manipulation of living matter may some day make the risk of the nuclear nightmare we have today pale by comparison. Agricultural history reveals a minefield of experiments gone wrong when predator after predator was intentionally or unintentionally introduced to control a pest, or when someone brought in or smuggled in a guest plant, pest or other organism. In the mad dash to commercialize biotechnology these risks are swept under the table at

every opportunity and dissenters are austrasized in the true spirit of commercial vs pure science.

While regulatory agencies are still trying to learn how to pronounce the words and make whole sentences with them, trans national companies which are beyond the regulatory capabilities of mere nations are continuing to monopolize the worlds agri-food and agro-chemical markets. Trans national corporations can locate plants etc. in any country and use this economic leaverage to silence any polititian who dares to suggest that regulation would be in the publics best interest. Free trade agreements play into the hands of Trans Nationals by forcing nations to lower their regulatory standards to the lowest common denominator. [a higher domestic standard is challenged in the international court as an artificial barrier to trade.] Keep an eye on this emerging monster and try to keep track of companies known to be involved in unsavory practices like marketing formula and banned pesticides in third world countries. Your purchasing power however small you think it is, is the one thing these giants fear most of all.

Biotechnology when applied to plants addresses the needs of the the agro-chemical and processing industries not the need's of the consumer. There is no thought given to the very real implications of what modified foods may mean to human health. The average diet in a developed country is increasingly factored in as a major contributor to it's illness profile, particularly when considering elevated risk populations such as children. Regulatory agencies are

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reluctantly confirming what they have vigorously denied far to long; our diet is deficient in many respects, contains many contaminants such as pesticide residues and is over processed, contains an unhealthy proportion of meats versus vegetables and grains and has inappropriate mixes of fats etc.

While third world countries often suffer from under consumption malnutrition, developed countries are increasingly considered to suffer from overconsumption malnutrition,

[lots to eat but little nutritional value] In addition to the burden placed on the body by having to process non-nutritive bulk many of the substances contained in these foods place specific burdens on body systems that are not designed to handle them. The health consequences of inappropriate nutrition include everything from cancer and circulatory diseases to allergies and sensitivities etc. These illnesses represent the majority of our health care costs and a very significant share of other costs such as absenteeism and lost productivity etc. For more information on this issue read *Brave New Food* by Joan Dye Gussow in *E - Magazine*, May-June-92. Joan lists the following resources:

The Gene Exchange: A Public Voice on Genetic Engineering. free from The National Wildlife Federation, 1400 16th. St. N.W. Washington D.C. 20036.

Biotechnology: An Activists' Handbook. \$2. : The Vermont Biotechnology Working Group, 15 Barre St. Montpelier, Vt. 05601 Ph: [802]223-7222.

RAINFOREST RESOURCES

Ironically the pharmaceutical giants are

returning to the the Earth's most highly developed chemical laboratory; the rainforest to search for new drug ingredients. The cost of developing and testing new synthetic drugs, and their success rate has led manufactures back to nature. The Rainforest Alliance states that "rainforests now cover only two percent of the Earth's surface, yet house more than one-half of the world's living species....The tropical rainforests are virtual untapped storehouses of genetic diversity with enormous chemical and economic potential.' The Alliance points out that "although only a small proportion of plants have been exploited by modern medicine, nearly half of all prescriptions dispensed in the United States contain substances of natural origin, and over half of these contain a plant-derived compound." With only one percent of tropical plants investigated so far and only a handful of traditional remedies explored there is a lot of potential left untapped. In China for instance there are "over 11,000 herbal remedies" which have been in use for thousands of years, "yet these herbs are still largely unknown to western medicine."

For a copy of their full colour brochure "Plants That Give Life" contact The Rainforest Alliance, 270 Lafayette St. Suite 512, New York, N.Y. 10012.

Many scientists are aware of the differences in effectiveness between natural substances and their synthetic copies. Many compounds that look identical chemically have properties which are not yet fully understood which make the natural chemical more effective. Important considerations such as assimilation, bioavailability, and detoxification etc. are affected.

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These factors are often important to people with environmentally related illnesses. Dr Rae has stated that there are already over two thousand genetic deficiencies recorded. Biological individuality is the cornerstone of our theories on sensitivities. With these factors in mind it is easy to see why seemingly irrelevant and minute differences in the chemical and other properties of drugs, foods and other substances may affect individuals, particularly susceptible ones differently. The importance of obtaining optimal vitamin and mineral supplements is important in therapy. The scientific literature frequently sites cases where significant doses of supplements do not result in a rise in concentration at the target.

PLANTS AS AIR FILTERS

The "NASA" plants are being tagged at retail outlets and promoted through magazine articles as the answer to indoor air quality concerns. How effective are they and why are only a few plants listed. Jillian Jensen who sits on the Plants for Clean Air Council [a joint committee of the Associated Landscape Contractors of America and NASA] told me that the list was somewhat misleading in that many other plants performed as well at removing contaminants but more importantly they also were better adapted to indoor growing conditions than some of the plants on the list. In an article in Canadian Facility Management [April 92] Jillian states that Dr. Wolverton who was the principal researcher on the NASA project has designed a commercial application for the "New Math and Science complex at at Northeast Mississippi Community College." Russian scientists have also been working on biological regeneration systems for

continuous air purification [for space stations]

The Russian system passes air through the root structure of suspended plants. Microorganisms on the roots break down the contaminants. This system has been successfully operated in Russia and a research project proposed for here will help evaluate commercial applications. Using plants for air purification is not without risk.

Most commercial plants come with synthetic fertilizers, waxes and pesticides, and all plants are subject to pests, moulds etc. all of which may be a problem for some or all of the occupants. Some plants also flower or are in themselves toxic or noxious. There is a lot to learn about biological regeneration and any proposals should take allergies, sensitivities and toxicity into account. One clients staff were complaining of severe allergy symptoms, thinking that building products were to blame, a bromelaid had blossomed, causing symptoms on three separate floors. You would have thought someone had spilled a drum of perfume!

In a related vein we are discovering some of the implications involved in using selective glazings [windows]. Tinted and selective coated glazings change the spectral range of light passing through them. Low E energy efficient glazing for instance blocks far more Infra Red light than clear glass. People like plants require balanced light exposure for optimal health. The infamous Ultra Violet light that we are warned about is actually only part of the UV spectrum. We actually benefit from the other part. Studies at M.I.T. with neutral coloured Low E glass showed that plants grown under it were in the medium range for

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healthy response. Plants under clear glazings did better and those under darker glazings did not fare well. The implications for human health are difficult to quantify. People who spend a lot of time indoors particularly in winter when light levels are already restricted can experience serious health effects generally clumped together under the heading SAD or Seasonal Affective Disorder, or Seasonal Mood Disorder [Cabin Fever in the Great White North]. Researchers at the Clark Institute for Psychiatry in Toronto estimate that up to ten percent of the population may be affected.

Beneficial UV is also associated with the synthesis of vitamin D in the skin, and with calcium assimilation. It may be advisable for susceptible populations to use clear glazings on those windows where they spend time such as a kitchen window, preferably south facing [maximum light]. It may also be advisable to raise beneficial light levels with full spectrum fluorescent, again where you spend the most time. Fluorescents should be equipped with parabolic reflectors, electronic [high frequency] ballasts and open [egg crate] covers. Plastic lenses reduce the light level and remove the beneficial UV. Egg crate covers are usually made of styrene a carcinogen so the more expensive aluminum type may be a better investment. The electronic ballast eliminates the hum, flicker and electromagnetic field associated with conventional ballasts. High Colour Rendering Index lamps are not full spectrum lamps but they are better than regular lamps. Full spectrum lamps are slightly bluish but you get used to it quickly. You can look directly at a full spectrum lamp but not at a regular lamp. Low E information from LOF and from

" Low-E Glazing Design Guide, Timothy E. Johnson, Department of Architecture, Massachusetts Institute of Technology. Ed.

PHEROMONES

Along with bioherbicides [predatory microorganisms such as specially selected fungi] and biopesticides [such as pyrethrins, not to be confused with pyrethroids their synthetic copies.] there are some friendly synergists of a different nature;

Pheromones.

Pheromones are " a chemical or mixture of chemicals released by one organism that induces a response in another individual of the same species." Natural pheromones which may be too unstable to use and chemical compounds which closely mimic their desirable properties such as :
Pheromone Analogues- chemicals which are closely related by structure and type to the original pheromone. and,
Pheromone Mimics- chemicals which induce the the same or similar response in the insect, but which are more distantly related to the original pheromone.

Pheromones are used as chemical lures To attract pests to traps for monitoring [I.P.M.] or to destroy them, or to confuse them, [mating confusion] . Adapted from Cooper Mill's Brochure. For more information, contact:: Cooper Mill Ltd. R.R.3 Madoc Ont. K0K 2K0. Ph[613] 473-4847. Distributors of pheromone traps etc.

PETS

Cats, dogs and horses etc., usually in that order are responsible for a lot of allergic symptoms. Recent research indicates that

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periodic bathing will reduce the allergen load generated by your pet. Formulas such as Allerpet are also available which coat the hair to reduce allergy potential. Allergic symptoms may be direct, including dander [skin particles like human dandruff but much finer and therefore more easily kept airborne.]; Saliva [deposited when fluffy licks herself, and transported as dried particles or on fur fragments]; and Urine [transported like saliva.] or they may be indirect. Fluffy picks up a lot of other allergens outside and brings them home on feet and fur. Kitty litter may contain formaldehyde, scents, inks [news print] clay dust, cedar oil etc. Pet care products can also be a problem. Pet collars contain pesticides which have been the subject of an increasing number of warnings from veterinarians. Pets can die if collars etc. are used too long, and children who are intimate with their pets may be directly exposed to Fido's chemicals, feces, ticks [disease transporters], allergens and even lawn and garden chemicals. Maybe a periodic bath is worth the fuss after all.

Parting with a pet will not remove the allergens just the production line. An air filter will also not remove the accumulated deposits. Allergens are effective for a long time and it is not at all unusual to have reactions when in buildings where pets roamed long ago. To accommodate the needs of a sensitive person a very thorough decontamination may be necessary. In an old home with multiple problems moving if affordable may be a reasonable option.

RIO

We haven't heard much from our returning soldiers except that Brian Mulroney has resigned the Green Plan

funds yet again this time to swap debt we would never see anyway for promises to preserve tropical rainforests and above all else promises to stop criticizing the rape of the once great northern rainforest. George Bush has promised to neither lead nor get out of the way.

NORTH YORK HONOURS PESTICIDE FIGHTER

Environmentalist Carolyn Black [an A.E.H.A. member] was honoured last month as the only individual to receive the City of North York's 1991 Environmental Award of Merit. Mayor Mel Lastman presented her with the award and his congratulations before the North York City Council on Oct. 16, 1991.

Black received the award in recognition of her work in persuading the city to reduce its' use of pesticides and to study pesticide alternatives. She also convinced the North York Board of Education and the Metropolitan Separate School Board to discontinue pesticide use.

It was not the first time that Black's environmental lobbying received official recognition.

In December 1988, Michael Wilson as Finance Minister sent Black and her husband a letter, stating that " as a result of your efforts on behalf of individuals whose immune systems have been seriously weakened due to environmental factors, a number of items required to maintain or restore the health of such persons will be eligible for tax assistance beginning in 1988." She now presides as the the head of the North York chapter of the Pesticides Action League, which has 70 members.

Adapted from an article by Nipa Mukerji in the Bayview Post.

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Carolyn Black

U.S. SUPREME COURT RULES AGAINST PESTICIDES

" June 21, the U.S. Supreme Court ruled that states and local governments can regulate who, when, where and how pesticides can be used and ask why they're needed." The tiny town of Casey Wisconsin believed that " research indicates that no pesticide is completely safe " and that they should be able to control it's use. After years of rulings the case landed in the Supreme Court which gave a unanimous ruling in their favour, thus defeating a massive campaign by the pesticides industry to prevent local governments from exercising their rite to control substances affecting human health.

Justice Scalia found that local governments were often more appropriate assessors of local needs, and stated that Congressional legislation on regulatory matters reflected the opinions of a small fraction of Congress, [those sitting on the committee] and that the majority were not fully informed; and that industry lobbyists affect legislation and therefore the benefit of the doubt should rest with caution and with local control.

This extremely important precedent was largely the work of a single woman Mary Emerson, the Town Clerk and the Assistant D.A. who in Wisconsin is also the Public Intervener. This demonstrates the essential need for intervener systems.

Adapted from an article in Environ #12.

FALSIFIED PESTICIDE TESTS

The E.P.A. is investigating data on several major pesticides after yet another lab was alleged to have fudged results. Are there any labs which have not fudged tests? [Sustainable Farming summer 91]

1,590 PESTICIDE REGISTRATIONS CANCELLED

- by E.P.A. for non- payment of annual fees.
Approximately 22,000 remain [I.A.Review]

SMOG FILTER

If pesticides and other pollutants interfere with your ability to travel the " Smog Filter " may be for you. The filter is custom made to fit your cars intake. Approximately \$60.00 U.S.

Contact: Interior Air Quality Inc. P.O. Box 3175

Grand Junction, Co, 81502.

Ph[303] 241-3238 Happy motoring.

MCS VICTIM WINS COURT BATTLE

"in a rare legal manoeuvre, Administrative Law Judge John A. Tarrant of Syracuse- on reviewing her [Jennifer Peiffer's] case- ruled in her favour without benefit of a hearing. Medical witnesses said Pieffer was totally disabled." [I.A.R.]

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TOXIC HOSPITALS

Dr. Paul Connett, Chemistry Department, St. Lawrence University; speaking at a recent public meeting in Toronto stated that over 100 hospitals in Ontario alone [5,000 in the U.S.] burn their waste in unregulated incinerators, thus turning a contagious [biological] problem into a carcinogenic [chemical] problem even though other safe methods such as autoclaving [steam sterilization] are less expensive. The modern waste stream from hospitals contains a high proportion of plastics, metals and radioactive materials which when burned in inefficient antiquated incinerators without any pollution abatement equipment, produce highly toxic ash, gasses and particulates which precipitate onto surrounding residential properties from short stacks.

Using an incinerator designed for 1950's wastes to burn 1990's wastes demonstrates the abusive use of grandfather clauses which allow existing uses to continue when new legislation is enacted. The absurdity of attempting to apply high tech, high cost solutions to simple problems was illustrated by the suggestion that "mothers not breast feed" rather than shut down the incinerator. Dr. Connett speculated on the warped nature of this logic; after all you only "breast feed for a year but you have 69 years to recover." Dr Connett noted that Greenpeace had acquired an internal E.P.A. memo contradicting their own sudden effort to trivialize the risks of Dioxins. The memo indicated that Dioxin may be immunotoxic at 100 times less than the cancer threshold dose and that there may not be a threshold for some responses. Dr. Connett also noted that nursing infants

were classified as a sub population but by his recollection "were we not all nursing infants at one time."

TOXIC HOSPITALS

THERE ARE FEW HAPPY CAMPERS AT CAMP HILL MEDICA COMPLEX, HALIFAX.

Dr. Roy Fox is on leave from his position at the hospital due to chemical sensitivities developed as a result of problems plaguing the hospital since at least 1989. The hospital has spent over \$1.5 million as a result of environmental problems which are still not under control. Dr. Fox like many physicians with personal experience would like to see a significant improvement in professional knowledge and attitudes.

See: Sick Hospital, Sick Doctor: Halifax Hospital tries to cope with "Environmental Sensitivity" By Deborah Jones in The Canadian Medical Association Journal; 146 [11].

MORE ON MERCURY

Alternatives [Vol.18#3] reports that the Swiss are installing carbon filters on crematorium smoke stacks to trap mercury and lead emissions. And Alive [July /Aug. 1991] reports that mercury amalgam fillings are banned in Sweden and require a patient advisory in the U.S.

HEALTHY SCHOOLS

ENVIRONMENTAL SENSITIVITY

The flipside of the environmental crisis
by Jill Witherspoon

Most school boards and other institutions have by now made the shift towards a more global consciousness and have implemented environmental policies for

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purchasing and operational practices. This process involves an ongoing evaluation of construction methods and materials, cleaning products and art supplies in an effort to choose those which are ecologically the least damaging. The assumption is generally made that if something is healthy for the environment, it is healthy for us as human beings. Unfortunately, this is not always the case, particularly for those individuals who seem to have become victims of their environment; the environmentally hypersensitive. Environmentally hypersensitivity is an ill-defined condition characterized by multiple sensitivities to a wide range of foods, chemicals, and environmental substances, many of them naturally occurring and environmentally benign. This condition is difficult to address because affected persons may react to a huge variety of commonly encountered substances at very low levels of exposure. Reactions may be physical, [for example, dizziness, nausea, hives, headaches] or emotional /mental [for example, poor concentration, hyperactivity, depression] and may vary tremendously from one individual to another. Diagnosis is difficult to obtain as the medical community is reluctant to accept environmental sensitivity as a definable illness. The fact remains, however, that many individuals are suffering bothersome and often debilitating symptoms on a daily basis.

For school children, these symptoms can have an enormous impact on behaviour and ability to learn. In the fall of 1991 the Allergy and Environmental Health Association held a networking workshop, hosted by The Waterloo County Board of Education in Waterloo entitled "Healthy Schools- The Impact of The Environment

on Learning." Their goal was to raise public awareness of the problem and to help those concerned share information and experiences regarding environmental hypersensitivity. Representatives of several Ontario school boards attended.

Many of these boards have taken impressive steps towards addressing the needs of the environmentally hypersensitive. In the early 1980's, the Waterloo County Board in Ontario began to look at the effects of various substances on students' health, behaviour and academic performance. In an effort to lessen the chemical load to which these students are exposed [particularly cleaning products, construction materials, and school supplies] the Waterloo Board has created several so-called "safe classrooms" as part of their Environmentally Controlled Opportunity [ECO] programme. Students assessed as environmentally hypersensitive may be admitted to the ECO programme and have access [full or part-time] to these rooms where great care is taken in the choice of construction materials, design of the ventilation system, and in deciding which items may be brought into the space.

Although other school boards, notably the Halton Regional Board, have established similar programmes and specially dedicated classroom spaces, most boards have chosen to accommodate the needs of sensitive staff and students on an individual, as-needed basis. This might involve providing portable air-filtering equipment, and altering construction, maintenance, and cleaning practices. The advantage of this approach is that it is much less costly and may be as effective for many individuals.

Hypersensitivity underlines the importance of dealing with all environmental issues in as holistic a

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manner as possible. Until a clearer understanding of the dynamics involved is reached, environmental decision-making will continue to be, at best, a slow process of trial and error. It is, however, a process which serves to instruct us that we are an integral and inseparable part of our environment and that by nurturing it, we nurture ourselves.

Jill Witherspoon is the Assistant Manager of the Energy Conservation and Building Environment Department of the Toronto Board of Education. She has several years experience in the field of indoor air quality.

Reprinted with permission from Green Teacher, June /Sept. 1992. Illustration by our own Howard Kadish, who in addition to his own sensitivities managed to acquire a horse with allergies too. Howards horse is an Icelandic, a breed which has a rare fifth gate, or "tolt", hence the name "Tolties" for the cartoon characters.



GREEN TEACHER

Green Teacher is an excellent resource for teachers etc. involved in environmental education. If your school does not subscribe their address is: 95 Robert Street, Toronto, Ontario, M5S 2K5, \$27./yr.
Ph: [416]960-1244

ENVIRONMENTAL STORES

Allergy Relief Products
19 Parkway Place, Dundas Ont. L9H 6K3
Ph: [416]628-5324

Earthdance
67 King St. E. Oshawa Ont. L1H 1B4
Ph: [416]435-0497

Earthly Goods
573 Mt. Pleasant, Toronto, Ont. M4S 2M5,
Ph: [416]482-5402

Eco Mart
400 Front St. Belleville Ont. K8N 2Z8
Ph: [613]966-4361

Ecos Canada
1500 Yonge St. Toronto, Ont. M4T 1Z6,
Ph: [416]964-3267

For Earths Sake
11 Wyndham St. N. Guelph Ont. N1H 4E4,
Ph: [519]837-3242

Green Earth Environmental Products
2148 Windotte Rd. W. Windsor Ont. N9B 1J9,
Ph: [519]253-4302

Kea & Company
67 Bronte Rd. Unit 3 Oakville, Ont. L6L 3B7,
Ph: [416]847-1797

Smiths, Healthy Choices
3463 Yonge St. Toronto, Ont. M4N 2N3,
Ph: [416]488-2600

The Green Store
Dawson Creek B.C. V1G 2G3,
Ph: [604]782-4140

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TIDBITS

CBC News-W5 Feb 21 : 38% of Canadians have an inability to read [comprehension] for basic supervisory functions, and 66% have a literacy problem, while 25% are functionally illiterate. For every dollar Germany spends on training Canada spends twelve and a half cents. Illiteracy is a function of need, Canada's abysmal performance looks a lot worse when compared with the needs of a less complicated society.

If you can't read what good are warnings?



One third of the world's population is affected by tuberculosis. TB like other "conquered" diseases is on the rise, with environmental and lifestyle factors implicated in their resurgence. A report in Indoor Air Review [Feb. 92] cites estimates of air exchange rates needed to slow down the spread of infectious diseases in modern buildings of 35 CFM or greater combined with germicidal lamps [U.V.] and HEPPA filters. Current [new] exchange rates are 15 to 20 CFM [ASHRAE Standard 62-1989] and only apply to new buildings. Also in IAR the EPA is revising its estimates of the dangers of ETS [environmental tobacco smoke] upwards. ETS is expected to remain a class A carcinogen. Radio news reports recently

carried a warning by the U.S. Surgeon General of a significant connection between parental smoking, infant illness and sudden death syndrome. Fetal alcohol syndrome is also sometimes cited as cause. Lack of exercise has now been added to the official list of heart disease risks. And my personal favourite the new television adds stating that one in five are lactose intolerant.

From EcoSource, June, 90; home oilchangers dump an Exxon Valdez worth of oil every 2.5 weeks, and productivity losses and health care costs of pollution in the U.S. amount to \$40 billion annually, plus \$5 billion in crop losses. [Worldwatch Institute]

The U.S. Supreme court has handed down a ruling that paves the way for smokers to sue tobacco companies despite the use of warning labels.

From Indoor Pollution News; the EPA states that PERC [perchloroethylene] or dry cleaning solvent should be classified as a possible carcinogen.

Along with the U.V. reports urging you to wear an appropriate sunscreen there is a deplorable lack of warnings about eye care. Ordinary sunglasses cause the iris to open up, increasing your exposure to U.V. rays which they do not screen out! Sunglasses that reduce the full spectrum of radiation evenly and screen out U.V.-B, radiation are essential gear in a hostile environment. Considering the studies which indicate the importance of appropriate sunlight to good health avoiding sunlight altogether is probably not a good idea.

From Drug Merchandising-Dec. 90, The FDA has banned the use of 223 noneffective

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drug ingredients for certain uses." and a report from the Canadian Paediatric Society that one in ten children may be at risk from parent directed vitamin therapy [Megavitamin and megamineral therapy in childhood. Can. Med. Assoc. J. 1990; 143 [10]: 1009-1012] Using a variety of supplements without taking into account the total dose of each ingredient can easily lead to an overdose. Nutritional sources should also be considered.

JUNK MAIL, JUNK PHONE, JUNK FAX

To reduce your exposure to communication pollution write to the Canadian Direct Marketing Association at 607, 1 Concorde Gate, Toronto, Ont., M3C 3N6 and call Bell Telemarketing Control. You can also drop all your junk mail back into the postal system [they will find you if your name is on it] or mail it to your M.P. [there is no charge for this service, and it does get the point across. Now if we could just mail them some of these perfumes.]

A conference titled Allergy Problems in Buildings was held in England on June 12. We will provide information from the proceedings as soon as possible.

On the same day that I gave a deposition on pesticides, and listened to the party line about regulation, training and safety, I had dinner with two of our members who told me that while working on a house that day they saw three separate lawncare companies spray lawns on the same street. A few hours later another crew showed up and mowed the lawns just in time for the children

coming home to [you guessed it] play on the same lawns. They sat and rolled around on the grass, on the one lawn out of all those that had been sprayed that had a sign on it. So much for theory! and no the crews did not wear safety equipment, I have never seen pesticides applied according to regulations, have you?

SCHOOLS: DO THEY AFFECT CHILDRENS' HEALTH, BEHAVIOUR AND ABILITY TO LEARN.

The American Academy of Environmental Medicine, October 24-27 Chicago Illinois.
Oct. 24 all day is open to school officials etc. Contact the Academy at P.O. Box 16106, Denver Co. 80216, Ph: [303] 622-9755
THE 6th INTERNATIONAL CONFERENCE ON INDOOR AIR QUALITY AND CLIMATE:
INDOOR AIR 93 HELSINKI, FINLAND, JULY 4-8, 1993

Contact the International Society of Indoor Air Quality and Climate, P.O. Box 22038, Sub 32, Ottawa, Ontario, K1V 0W2

ASHRAE Indoor Air Quality 92 Conference
Environments For People, San Francisco Ca. Sept. 18-21, Ph: [404] 636-8400

ASTM E 981 BIOASSAY

Originally developed to measure airborne irritants such as pesticides, this technique tests an actual sample of the complex mixture of chemicals in the air of a problem building by exposing mice to it. This Black Box technique relies on the fact that mice

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are less sensitive than humans and therefore if they react the sample is a cause of actual health problems, not psychological factors.

[Indoor Air Review Jan 92]

Beyond IPM

Integrated Pest Management seeks to reduce pesticide use by spraying only when pests reach a significant level. There are also alternatives to the pesticides themselves.

E. Magazine [May-June, 92] reports that nematodes [tiny soil borne parasitic worms], hot air fumigation and electric shocks from ray guns are being used to combat termites and other pests. Now if we could just do something with those two legs.

MOBILE INDOOR AIR QUALITY

Researchers at Harvard have determined that commuters are exposed to much higher concentrations of VOC's in transit than at home or at the office. [IAR May 92].

MMT

Now that lead is banned for use in automotive fuels [but still manufactured in Canada and sold abroad - its not just the Americans who lack ethics in this world, there are some insidious minds at work trying to top the devastation brought on by the abuse of lead in fuels. MMT or methylcyclopentadienyl manganese tricarbonyl contains manganese which has a toxicity rap sheet a mile long. There is a move afoot to have it approved for use in auto fuels, for a full report see Mother Jones, May-June 92, and start writing your M.P.

BOOKS

If you are into risk assessment and want to understand how authorities trivialize it, Dr David McCallum, Center for Risk Communication at Columbia University has written "Public Knowledge and Perceptions of Chemical Risk".

Help For The Hyperactive Child
William c. Crook, Professional Books,
Jackson Tenn. 1991,

From The National Academy Press
[2101 Constitution Ave. N.W. Washington
D.C. 20077-5576, Ph [202] 334-3313.]

- Biological Markers in Pulmonary
Toxicology

[CLS] -04389-1. 1992, 224pp. 7x10, P\$37.95

- Multiple Chemical Sensitivities,
Addendum to Biological Markers in
Immunotoxicology,
1992, 6x9, 200p, \$24.00
ISBN 0-309-04736-6 paperback.

- Emerging Infections, Microbial Threats to
Health, Joshua Lederberg, Robert
E. Shope, and Stanley C. Oaks, Jr. Editors;
Committee on Emerging Microbial Threats
to Health, Institute of Medicine. Sept. 6x9
225p, \$24.95 Estimated. ISBN 0-309-04741-2
- Diet and Health, Implications for Reducing
Chronic Disease Risk, Committee on Diet
and Health, National Research
Council. 1989,
8 1/2 x 11, 768p, \$49.95, ISBN 0-309-03994-0
- this is the main technical document from
which the next more readable book is
derived ie.

- Eat for Life, The Food and Nutrition
Board's Guide to Reducing Your Risk of
Chronic Disease. Catherine E. Woteki and

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Paul R. Thomas, Editors; Institute of
Medicine, National Academy of Sciences.
1992, 6x9, 192 pages, \$18.95
ISBN 0-309-04049-3

ON THE BARBIE SAFE BARBECUING FOR THE SENSITIVE

Barbecues can be a problem for the chemically sensitive. Propane, natural gas, charcoal, starter fluid and burned fats etc. can cause reactions and many barbecue sauces are less than ideal bundles of ingredients. Donna Powell suggests using an electric barbie to avoid the fuel problems and get better temperature control and therefore avoid burning the food, which presents its own risks. Electric barbecues start at \$99.95 and are carried by many local stores although you may have to ask for them.

If you have a problem with regular BBQ fare try this delicious recipe for tofu burgers from Donna's cook book "Why 5"

DONNAS OWN TOFU BURGERS

30 oz. tofu, pressed then squeezed.
6 tbsp. grated carrots
4 tbsp. ginger root
2 tbsp. ground peanuts or cashews
3/4 tsp. sea salt

Combine first five ingredients in a large shallow bowl; mix well, then knead mixture 3 minutes as if kneading bread. When "dough" is smooth and holds together well, moisten your palms with a little oil or warm water and shape into 8 patties, each 3 to 3 1/2 inches in diameter. Look for other alternative recipes for items like lentil burgers in Donna's book and others, and experiment with your tolerated foods.

Tofu burgers, dogs and BBQ sauces are also available from health food stores for the less adventuresome. Vegetable based products however lack the fat content of meats and are therefore very easy to burn or dry out on the barbie so a lower temperature and more vigilance may be in order. Loblaws has a terrific accessory for your BBQ, it is a ceramic coated, perforated metal sheet that covers the grills and provides a much better surface to cook on. spreads the heat a little better and prevents flimsy foods [like tofu burgers] from falling into the coals. Your president definitely recommends this Presidents Choice item.

Now about that BBQ sauce, Donna recommends making your own so that you know what's in it. This is her suggestion.

DONNAS OWN BBQ SAUCE

1 cup natural tomato sauce
1/2 tsp dry mustard
1 tsp onion powder [not onion salt - it has other ingredients in it]
1 tsp garlic powder
2 tsp lemon juice [or more for tartness.]
1/2 tsp paprika
sweeten to taste with honey and add water to adjust consistency.

Variations - natural catchup can be substituted for tomato sauce but ketchup is quite sweet and results in a sweeter BBQ sauce. If using ketchup, omit honey. Purried fruit [ie. pineapple] can be substituted for tomato ingredients if you are allergic.

And for dessert Donna suggests;

Honey Dew Lime Ice

Cut a large honey dew melon in half;

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scoop out seeds, peel and cut into small squares. Blend in a blender with 1/3 cup of sweetener and 3 tsp lime juice. Place in an 8" square cake pan and freeze[or freeze in jello moulds]. If using cake pan, bring out to thaw so it can be scooped into sherbet dishes. And for something to quench your thirst try:

SPARKLING CITRUS COOLER

- 2 lemons
- 1/4 cup orange juice
- 6 oz. club soda
- 2 thin slices of lemon

Squeeze lemons and mix thoroughly with orange juice. Chill. When ready to serve, pour over ice and chilled club soda for sparkle and float lemon slices on top [any tolerated fruit juice can be substituted].

From "Why 5 ? -A Complete Food Allergy Guidebook" by Donna Powell, B.Sc.N.

PESTICIDES AND HUMAN RIGHTS

The Illinois Department of Human Rights has found "substantial evidence" in support of a human rights case by three local residents against the municipality. They contend that the spraying affected their health and life. Since the U.S. Department of Housing and Urban Development has recognized chemical sensitivity as a legitimate disability precedents are now being set in courts. In Chicago a residential suit has been settled by negotiation with a major landlord who has agreed to accommodate the needs of chemically disabled tenants. From the Chicago Tribune June.1,92 as reported in a National Center for Environmental Health

Strategies news release 5,1,92.

Earon S.Davis, Of The American Academy of Environmental Medicine and a specialist in Environmental Law has written the American College of Physicians requesting that it withdraw it's position statement entitled "Clinical-Ecology ", published in Annals of Internal Medicine, 11:2,168,1989, in light of evidence, now acknowledged by several scientific and jurisdictional bodies, and the denunciation of this paper by the National Academy of Sciences, as "poorly supported opinion."

PESTICIDES AND ENVIRONMENTAL HEALTH

A lecture presented by Joseph E Cummins, Associate Professor (genetics) Dept. of Plant Sciences, University of Western Ontario; to the Annual General Meeting of The Allergy and Environmental Health Association of Canada, Laurier University, May 23, 1992.

INTRODUCTION

In this report I will discuss general aspects of pesticides and environmental health. I have previously prepared detailed reviews of the impact of cosmetic pesticides ("A Cosmetic Pesticide Free Zone, Nov, 1990") and forest herbicides ("2,4-D and Vision" Dec. 1991) and I will provide these reports to interested people. The reports reference scientific studies and reviews and they may prove useful in dealing with municipal authorities. In the broad context of evolution it is very clear that in order to survive and prosper both plants and animals formed natural defences against

ongoing battle between plants and animals to perfect chemical defences. This process is described as animal-plant "warfare" (Trends in Genetics 6,82,1990). Hunter-gatherer societies needed expert herbalists to pass on knowledge of plants that didn't kill in agricultural societies; humans were domesticated by plant crops to protect them from predation and ensure their propagation. Most chemical pesticides (herbicides, fungicides, insecticides and rodenticides) were invented after 1950. These xenobiotics (man made chemicals) may have created more problems than they solved. They have tended to destroy natural predators of pests and to disrupt natural immunity in both animals and plants. Crop losses due to pests actually increase with inflated pesticide use because the economic benefits of pesticides exceeds those of pharmaceuticals.

Pesticides Cause Human Health Problems

I will provide a single primary reference for human health effects, *The Effect of Pesticides on Human Health*; Ed's S. Baker and Wilkinson, Princeton, 1990. However, some of my discussion will include concepts and observations post dating the above review.

Gene Damage: the majority of pesticides are implicated in gene damage leading to cancer or birth defects. Human concerns are caused by damage to well described genes called oncogenes. There are about 50 dominant oncogenes that result from damage to genes for growth factors, cell signalling or gene transcription. As well there are recessive oncogenes whose normal form codes for cancer suppressors (Biochem. Biophys. Acta 1072, 193, 1992). All

human cancers have well characterized gene changes or amplification. Sometimes oncogene changes have multiple effects, for example the Fos-Jun nuclear oncogene; is implicated in both cancer and epilepsy. Pesticides cause cancer by damaging the protooncogenes which are changed into virulent oncogenes. Recently pesticides and PCB's were shown to be implicated in human breast cancer (Arch. Envir. Health 47, 143, 1992). A California chemist tied to the chemical industry claims "natural" pesticides are more hazardous than man made chemicals but these concepts were refuted by cancer researchers (Envir. Res. 50, 207, 1989). The idea that "natural" carcinogens are far more threatening than "man made" carcinogens was used to justify ignoring the cancer risk from synthetic chemicals but if this were the case vegetarians should have higher cancer rates than omnivorous people (the former have much lower cancer rates). Pesticides (including 2,4-D) are implicated in birth defects. A broad survey of a large population showed that people living in areas with environmental contamination (including pesticides) had elevated risk of bearing children with malformations of the heart and circulatory system (Arch. Envi. Health 47, 147, 1992). Chronic pesticide exposure is also implicated in impaired reproduction and development.

Neurotoxicity: Both herbicides and insecticides are implicated in nerve damage. Typically changes included delayed demyelination resulting in impairment of the lower limbs (dragging hindquarters). Epileptic convulsions, EEG changes and muscle twitching and jerking are frequently observed. Psychological changes include insomnia, anxiety and irritability. Nerve toxicity may be noted at chemical levels well

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toxicity may be noted at chemical levels well below those causing significant cancer. Interestingly, bad odours may in themselves cause illness and nerve damage (Arch. Envir. Health 47,76,1992).

Immunity (allergy): Pesticides cause effects including suppression of the immune system. This effect is specific to the class of pesticide and may vary from severe to slight. Many pesticides are allergens creating severe to mild attacks. Traditionally allergy is believed to have originated as a means of fighting parasitic worms but its widespread prevalence is anomalous. A recent theory by Margie Profit (Quart. Rev. Biol. 66,23,1991) seems to explain many more of the aspects of allergy. Her hypothesis is that allergy is a response to gene damaging toxins. Allergy including rapid response coughing, sneezing, scratching, tearing, even vomiting and diarrhoea. Such symptoms void the toxic environmental chemicals and protect the allergic person.

Herbicides are a most pervasive threat. Turning to the environmental impact of pesticides, the United States Survey of community drinking water 10% of wells were polluted with pesticides (Chem. Eng. News 20,17,1992). The main problem in the Great Lakes Basin was atrazine, a corn herbicide; 12% of drinking water wells and over 90% of surface waters were polluted with atrazine (Envir. Sci. Tech. 24,935,1992). There is a clear association between atrazine exposure and human ovarian cancer (Scand. J. Work. Envir. Health 15,47,1989).

Banned Pesticides from Central America and the Caribbean are deposited by air currents into Ontario and the Mississippi Valley. Even if polluting pesticide use was curtailed in Canada, a major problem

results from pesticides banned in Canada blowing into southwest Ontario from the Caribbean and Central America (Envir. Sci. Tech. 26,276,1992). Accumulation of airborne PCB's and pesticides threatens the existence of arctic humans and animals. Amphipods in the deep arctic had the highest pollution levels globally for that intermediate level in the food chain (Arch. Envir. Coat. Tox. 22, 41, 1992). The milk of Inuit residents of the east coast of Hudson's Bay was polluted to levels exceeding Ontario criteria for toxic liquid waste and could not legally be deposited in a landfill (Bull. Envir. Can. Tox. 43,641,1989).

Pesticides and the ozone layer. A pesticide, methyl bromide, used to sterilize soil and kill insects in grain is a major threat to the ozone shield (United Nations Envir. Prog. Stratospheric Ozone Depletion 1991). Each bromine molecule in the stratosphere destroys 30 to 120 times more ozone than does the comparable chlorine. Thus methyl bromide which is released at levels comparable to CFC is more potent in destroying ozone. Similarly the herbicide Bromoxynil, which is replacing 2,4-D in wheat production may be implicated in ozone depletion. Ozone depletion has caused a 6% to 12% reduction in phytoplankton near Antarctic waters (Science 255, 952, 1992). Such depletions will soon eliminate most animal and human life in polar areas.

Are pesticides necessary? Recent findings show plants have complex immune systems, mainly defending themselves from predators and parasites with chemicals called phytoalexins. (Molecular Strategies of Pathogens and Host Plants, Springer-Verlag, 1992). Mycorrhiza, the community of microbes living in and near plant roots, are essential for plant health but are destroyed

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occurs when ozone, chemical pollution and herbicides damage mycorrhiza causing a normal non pathogenic fungus to invade and destroy the trees, in an effect similar to AIDS. Current molecular studies are beginning to show the way around pesticide use.

Is biotechnology a solution?

Many officials promote biotechnology (gene splicing) as an "environmentally friendly" approach. However, most of the proposals simply hoodwink the public. Of the 157 field trials proposed for Canada this year to test transgenetic plants (gene spliced forms) 81% are for herbicides. Atrazine resistance is transferred, for example, to soybean and alfalfa because atrazine use on corn poisons the soil so only corn can be grown. Crop rotation is essential for high crop yields.

Plant tolerance to insects, viruses and fungi is also engineered by planting foreign genes into crop plants. Crops with foreign gene products are likely to be food allergens, impacting on sensitive people from migraine to death. Presently companies are fighting having to tell people about the inserted genes. Biotechnology is a threat and testing it needs public input.

Changing gears to practical matters. There is a need to reform the Ontario Pesticide Advisory Committee (OPAC).

The situation with "officials" and pesticides is similar through most of Ontario. The mind set of medical officers of health is to blindly follow "official policy". Advice and policy is spewed out by the Ontario Pesticide Committee (OPAC). That group is blindly biased to the chemical industry and flagrant in suppressing evidence of harm from pesticides. The Minister of Environment could, with a stroke of a pen, at no financial burden,

balance OPAC with environmental advocates strong enough to deal with the pollution advocates from Guelph. At every public meeting I urge environmental advocates to ensure that Ruth Grier is aware of our wish for balanced and honest environmental presence on OPAC. Presently OPAC makes the Minister look very two faced. Ontario should have environmental advocates on OPAC to balance the pollution advocates.

Federal Minister of Environment, Charest, diverted funds from Canada's Green Plan to finance re-registration.

Pesticide registration is defined in the Pest Control Products (PCP) Act Canada. Pesticides are products used to kill weeds (herbicides), insects, fungus or rats. Registration involves establishing human health hazard, threat to the environment and effectiveness of products allowed to be sold in Canada.

Such products must have a PCP number and warning about injury from the product. Agriculture Canada has had a terrible record of promoting products injurious to people and the environment.

The main features of the pesticide "green plan" include accelerated "re-registration" of older herbicides and insecticides. Prior to the "green plan", costs of registration have been born by multinational chemical companies. Somehow the minister believes that footing the bill for multinationals is going to improve Canada's environment.

Green-plan support for old herbicides and insecticides is considered laudable environmentalism by older people, who found that older materials killed more things for a longer time (left potent residues). Products like DDT, Agent Orange (2,4-D and 2,4,5-T), hexachlorobenzene, lindane, etc. certainly left a powerful impact

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lindane, etc. certainly left a powerful impact on the environment. The "real" environmentalists of Ottawa's green plan are committed to spending big looneys to keep old chemicals and old chemical companies in the environment.

Another large chunk of big looneys will be devoted to a scheme to permit big users to import American products that are not registered in Canada. At any rate the practice has been employed unofficially for a number of years, but it is hard to see why green loons are needed to make it appear environmentally friendly.

The plan also features improved transfer of official information on health, safety and environmental information to users of pesticide products. However, the "official" government information on health, safety and environment has been profoundly injurious as well as being selected to disregard findings implicating pesticides. Thus, big green loons are going to propagandize the safety of unsafe products.

Environment Canada has acted in a totally cynical and disreputable manner by shuffling funds designed to improve the environment into the industry-biased pesticide proponents of Agriculture Canada.

Agriculture Canada has flagrantly palmed off the funds to pay for programs previously supported by multinational chemical concerns. Obviously the two ministries have made the chemical companies more profits and shown a fundamental contempt for the brains of Canadians.

Things to do to help save the environment:

Write: Hon. Ruth Grier, MPP
Queen's Park, Toronto, Ont, M7A 0A6

Demand reform of OPAC
Write: Hon. Jean Charest, MP

Minister of the Environment
House of Commons
Ottawa, Ontario, K1A 0A6

Demand that he Resign
Write: Hon. Bill McKnight, MP
Minister of Agriculture
House of Commons
Ottawa, Ont, K1A 0A6

Demand that transgenetic field tests have an Environmental Assessment Review Process (EARP).

Joseph E. Cummins may be reached at
Ph: (519) 679-2111 ext. 6478
University of Western Ont.
London, Ontario,
N6A 5B7.
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In the fall Quarterly we will try to include another transcript from the conference, a list of studies on Environmental Sensitivity, part two of Warm Floors, information on petitions and a pesticide petition, and a schedule of board meetings. An article on air filtration is in the works and look for more from Dr. Sherry Rogers.

NOTICE

A E H A has a new address:

3463 Yonge Street
Toronto, Ontario
M4N 2N3
Ph: (416) 488-2600
Fax (416) 484-8855

For inquiries ONLY
Ph: 1-800-695-9271